of the duopoly, the likely progression of technology and our potential impact upon it, and whether or not cellular would be more than an expensive and unimportant adjunct to other services. On the other hand, we could have offered carriers the maximum pricing flexibility allowed by law. However, the possibility of monopoly-like profits and the prospect that cellular would become an important service deterred us from that course. Our resulting pattern of regulation, initial rates based on cost projections but left largely unexamined since, was reflective of this uncertainty regarding cellular's role as a service and our role in overseeing it.

In this decision we aim to provide a sounder and clearer philosophical basis for our regulation of cellular. We intend to clarify a consistent set of policies on which carriers, resellers, customers, and others may rely with some assurance. Some of our initial uncertainty has been clarified with time and experience, while the advancing pace of technology and market development has posed new questions. We intend to promulgate a flexible and forward-looking regulatory framework that will meet customer needs while accommodating some of the changes that appear likely in the near future.

In considering these issues we will bear in mind the continuing essential fact of this industry--the duopoly wholesale carriers licensed by the FCC. Were it our choice, we would license additional carriers to assure the public the full benefits of a well-working competitive industry without a need for substantial regulatory intervention. We do not have the choice of certificating additional carriers, but we will seek to provide the benefits of competition to the extent they are achievable under the FCC's market structure.

Phase I

Comments and reply comments to the Phase I issues were filed by approximately 20 entities represented by 45 utilities and interested parties, as shown in Appendix B.

The first phase addresses:

a. The future of cellular radiotelephone service.

b. Regulatory goals and framework.

c. Service quality and consumer protection.

d. New ratemaking and regulatory issues.

The Future of Cellular Radiotelephone Service

Many of our telecommunications systems today have the capability to offer "toll free" calling over large geographic regions of the state through their tandem interconnections with interexchange carriers (IECs). A stated goal, through microwave and other types of switching arrangements, has been to offer subscribers inexpensive interLATA (Local Access and Transport Area) service from one end of the state to the other. We are concerned how the cellular network will develop and whether it will develop into an alternative telephone network.

Impact on Conventional Service

At present, cellular service is not an important substitute for landline local exchange service. Given the high cost of cellular equipment, rapid technological changes, and network access and usage, Redwood Cellular Communications, Inc. and other parties concur that cellular service will continue to be a discretionary service complementing conventional wireline service. However, Cellular Resellers Association, Inc. (CRA) and GTE California Incorporated (GTE) assert that as the cost of cellular service approaches that of conventional wireline service, cellular

service will be the preferred service and become a direct competitor to conventional wireline service.

The optimum market size for cellular service has not been reached. Although the present market size is based on analog radio technology, it is difficult to predict the optimum size because of the ability to place additional cell sites in a given area and the ability to split cells. Currently, the optimum size is restricted based on individual capacity, coverage needs of each cellular market, and desire to maintain quality service. For example, one of the largest cellular systems in California, Los Angeles Cellular Telephone Company's (LA Cellular) present system has a maximum capacity of 200,000 to 250,000 subscribers. However, with the implementation of second generation technology, or digital technology, LA Cellular expects to increase its capacity by 3 to 4 times, or to about 600,000 to 700,000 units dependent on the technical standards to be established for digital service and the associated cost to implement.

Parties concur that cellular service is a discretionary service and that cellular service will not replace or directly compete with conventional wireline service in the near future. Therefore, we should not set a "basic service" goal for the cellular industry at this time. However, it is apparent that continued technological advance could make cellular or other radio-based systems competitive with landline basic service in the coming decade. While we do not face this issue today, parties should recognize that this development would change the essential fact on which much of our regulation of local exchanges is now based, that of the local loop being a monopoly.

For the near term, our regulatory framework must be flexible enough to accommodate the substantial increases in capacity that digitalization will permit along with concomitant price decreases for customers. There is also the issue of the likely obsolescence of the customer premises equipment (CPE) or

cellular telephone sets that now function on analog technology and are unusable for digital. While it is illegal to bundle the sale of unregulated CPE with utility services, carriers may wish to offer introductory digital services at discounts sufficient to attract customers despite the cost of purchasing a new telephone set. Our framework should be flexible enough to permit such discounts as an impetus towards more efficient use of all-digital networks.

Low-Cost Portable Phones

Another issue is how improvements in cellular telephone sets have affected the overall market. In the first four years of cellular service in California, a catalyst in the penetration of the telecommunications market was the decline in the price of mobile telephones from an average of $2,500 in 1984 to an average of about $500 in 1989. CRA concurs that low-cost phones have arrived. Improvements in the phones as to weight, size, and talk time restricted by battery technology have also helped increase market penetration.

However, the development and enhancement of low-cost phones is not the only force affecting the overall growth of cellular service. Price sensitivity to cellular access and usage is another important component. As shown in GTE's illustration of a customer's monthly bill in the Los Angeles market[1] with the availability of low-cost phones, the primary avenue for enhanced

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1 Assuming a phone price of $3,000 in 1984 and $500 in 1988 amortized over 3 years at 18 percent interest, and 200 minutes of monthly usage.

	1984	1988
Amortized Phone Cost	$106.85	$ 17.81
Monthly Network Access	50.00	45.00
Network Usage	70.00	70.00
Monthly Bill	$226.85	$132.81

market penetration for the future will be in reduced access and network usage costs.

Changes in Conventional Landline Regulatory Policies

In addition, regulatory policies and technological changes in other sectors of the telecommunications industry may affect cellular service. Some of the near future changes which may impact the cellular industry are a reduction in landline toll rates, increased intraLATA competition, and marketing of a noncellular digital portable phone. Parties concur that customer penetration will not be significantly impacted by lower landline toll rates or by an increase in the growth of the intraLATA toll market because such charges are already being passed through to the cellular customer.

Related issues include whether cellular calls represent uneconomic bypass, and the appropriate status of enhanced services offered on cellular systems. Although CRA believes that all cellular carriers offer intraLATA toll and interLATA service, GTE Mobilnet of California Limited Partnership and GTE Mobilnet of Santa Barbara Limited Partnership (GTEM) clarify that the Cellular Geographic Service Areas (CGSAs) approved by the FCC and this Commission never intended to conform to or coincide with existing landline boundaries.

As LA Cellular points out, rather than providing toll service, the cellular carriers generate traffic for the landline carriers because nearly all cellular calls are carried in part over wireline facilities. It is because of this complementary or incremental service that there is no bypass of the LECs' or IECs' network. Because the LECs and IECs charge compensatory rates for their facilities on a tariffed or contractual basis, these charges are passed directly through to the cellular subscriber when the call is terminated outside the CGSAs. There is no uneconomical bypass because these rates are included in the cellular carrier's

basic access and airtime charges when the call is terminated within a CGSA.

Parties also concur that enhanced services[2] such as voice mail, will expand the role of cellular phones with efficient 24-hour communication capabilities. Voice messages and other advanced communications services generate additional traffic for the network, because when a caller does not reach a desired party, the caller is able to leave a message, hence a completed call. The latter makes periodic calls to check for messages, and then makes additional calls as a result of recording these messages.

U S West Cellular of California, Inc. (U S West) and other facilities-based carriers argue that the regulation of enhanced services is not necessary because enhanced features are both competitive and discretionary services.

On the other side, CRA and Cellular Dynamics Telephone Company of Los Angeles (Cellular Dynamics) argue that enhanced services should be cost based and that resellers should be accorded equal access to such services with a wholesale/retail margin commensurate with that provided for basic cellular service.

The regulation of enhanced services has been an issue in LECs proceedings since the FCC-preempted state regulation of enhanced services approximately two years ago. This Commission, along with a number of other parties, appealed the FCC's enhanced

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2 As defined by the FCC in the Second Computer Inquiry, these are services offered over transmission facilities which employ computer processing applications that act on the format, content, code, and protocol or similar aspects of the subscribers' information, provide the subscriber additional, different or restructured information, or involve subscriber interaction with stored information.

services preemption. The United States Ninth Circuit Court of Appeals[3] has heard oral argument, and an opinion is pending.

Currently, LECs enhanced services are not required to be tariffed. However, procedures on billing and consumer rights impacted by enhanced services are tariffed, as identified in Decision (D.) 89-09-049. As discussed in this opinion, cellular service is a discretionary service, and as such, warrants less stringent regulation than the LEC's monopoly which provide basic service. Irrespective of the outcome of the Commission's appeal, we may decide that carriers' enhanced services need not be tariffed. However, CRA's comment on a carrier's refusal to offer resellers enhanced services currently offered to the carrier's end users substantiates the need to require those carriers who offer enhanced services to all wholesale customers, including resellers, on a nondiscriminatory basis at the wholesale level as a condition of allowing nontariffed enhanced services.

Regardless of whether enhanced services are or are not tariffed, end user rights to tariffed services need to be protected. Therefore, end users rights, similar to those adopted for LECs end users in D.89-09-049, should be adopted.

Carriers may not disconnect any tariffed services solely for nonpayment of enhanced service charges and should notify end users receiving bills for enhanced services of this rule when the end user receives the first such bill. Any end user complaints about enhanced services should be tracked by carriers as to the number and nature of complaint and be made available to the Commission Advisory and Compliance Division (CACD) upon request.

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3 People of the State of California v Federal Communications Commission, Case Nos. 87-7230 et al., Ninth Circuit Court of Appeals.

Regulatory Goals and Framework

An integral part of this investigation is to assess the regulatory goals for the cellular industry prior to our consideration of alternative regulatory frameworks for the cellular industry. These goals encompass universal service, economic efficiency, technological advancements, utilization of the LECs, anticompetitive behavior, and financial and rate stability.

Universal Service

Universal service, or the availability of basic telephone service at affordable prices to all Californians, is a basic goal for landline services by the LECs. Recognizing the high cost of providing basic service to the rural areas, comments were requested on whether or not cellular service should be considered a cost-effective alternative to landline service in the rural areas.

CRA believes that a universal service policy must be incorporated into cellular regulation to assure that Californians have equal opportunity for service. However, GTEM maintains that cellular service is a complement to wireline business service, rather than a substitute for conventional wireline service business and residential service.

To the extent that cellular service may displace landline service in the rural areas, GTEM represents that such service will be provided by LECs as part of their Basic Exchange Telecommunications Radio Service (BETRS).[4] However, McCaw Cellular Communications, Inc. (McCaw) and its affiliates do not believe that this will occur because the FCC specified that BETRS is the radio-based service designed specifically to provide

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4 By FCC Report and Order, CC Docket No. 86-495, released January 19, 1988, the FCC granted rural radio service licenses "co-primary access" to certain cellular frequencies to provide BETRS in rural areas. Cellular carriers were authorized to provide only fixed installations of cellular service on an incidental basis.

telephone service to rural subscribers who have no other telephone service. The FCC prohibits the provision of fixed cellular service by cellular carriers except on an incidental basis. Cellular service is not presently an economically viable alternative to landline service. High-quality landline service is already widely available in most rural areas at reasonable prices because of numerous assistance programs and policies established for rural landline telephone companies to ensure continued affordable telephone service.

Cagal Cellular Communications Corporation (Cagal), Santa Barbara Cellular Systems, LTD. (Santa Barbara), Santa Cruz Cellular Telephone Company (Santa Cruz), LA Cellular, and other interested parties concur with GTEM. As PacTel Cellular (PacTel) and its affiliates shows in its comments, there are approximately 400,000 cellular units in service compared to approximately 17 million LEC access lines.

We conclude that universal service is not an appropriate goal for the cellular industry at this time because cellular is a high-cost developing industry undergoing rapid technological changes. It is expected to serve only about five percent of the population in the next five years.

Economic Efficiency

We are interested in goals which may enhance economic efficiencies via cost-based rates and which may encourage cellular providers to minimize their cost of service.

CRA asserts that economic efficiencies can be obtained through cost-based regulation of wholesale rates and oversight of anticompetitive practices. Although Cellular Dynamics believes that competition is the best driver of economic efficiency, it recognizes that meaningful competition is not present in the cellular industry because the wholesale level is dominated by a duopoly. It also believes that cost-based rates for the wholesale level will promote efficiency.

GTEM and U S West disagree that cost-based regulation is necessary to promote economic efficiency because competitive and economic efficiencies already exist in the cellular industry and are driven by market forces. They do not believe that price regulation will enhance economic efficiencies.

McCaw concurs with GTEM and U S West. It points out that cellular carriers must establish prices above marginal costs to maximize their system because of the high percentage of inherent fixed costs. It recommends the marginal cost approach because of pressures from the existence of an alternative cellular system provides an incentive to keep costs as low as possible and at the same time encourages high-quality service.

McCaw believes that economic efficiency can best be derived from a competitive marketplace free of regulation. Although it concurs that a regulated market can lead to economic efficiencies, it believes that such intervention can only enhance economic efficiency when regulation properly and completely allocates applicable costs, accurately establishes rates based on cost without any social subsidies, and fully monitors and adjusts all behaviors that result from artificial regulatory intervention.

We can distinguish economic efficiency concerns relating to the underlying duopoly from those related to competitively-provided aspects of cellular service such as equipment sales.

There are two issues related to the FCC's decision to license only two wholesale carriers and create a duopoly market. The first is how we should view the scarcity of electromagnetic spectrum that can be allocated to this or any other economic activity. The second is how we should view the fact that only two carriers have been licensed in each market to use the limited spectrum, with additional market entry possible only if the FCC either takes spectrum away from the incumbents or reallocates it from some other use.

As the demand increases for goods and services that require the use of the spectrum, so increases the rents that its owner will earn.

There is an economic efficiency reason for permitting an owner to keep revenues derived from the use of radio spectrum because it encourages investment that will permit more intensive use of that spectrum (for example, more calls or subscribers on a given set of frequencies). The result is a greater supply of service for the public. Limits on the profits that can be earned or kept will diminish the incentive to expand the use of the spectrum, and the public will receive less service. For these reasons we recognize that profits earned due to the scarcity of available radio frequencies are best left to the carriers.

By contrast, we should not permit carriers to keep profits due solely to a failure to compete in a duopolistic market. There is an incentive to fail to compete vigorously when new entrants cannot join the market to undercut monopoly-type prices. The result would again be a type of economic inefficiency, for noncompetitive pricing would lead to excess capacity on cellular systems (where a lower, competitive price would stimulate increased consumer demand and fill up the system).

It is efficient to permit carriers to earn revenues from owning the FCC license, but not from a failure to compete that reduces the demand for cellular through overpricing. In other words, we should become concerned if carriers keep prices high enough to discourage the full use of their systems, or if carriers fail to invest in system expansion when it is economically justified.

On the other hand, cost of service regulation of wholesale prices is problematic in a competitive industry like cellular that is undergoing rapid technological change. By way of reference, D.89-10-031 articulated at some length our findings that technological innovation and cost cutting are hindered by such

regulation. The competitive duopoly market structure introduces other complications that would make it even more difficult to achieve efficiency through cost of service regulation. Carriers differ in their numbers of customers, precise service areas, equipment, and in numerous other characteristics that affect costs. We would be faced with setting different prices or different allowed rates of return; the former would artificially bias the market towards one carrier while the latter could be attacked on fairness grounds. Some carriers serve our markets only by virtue of having purchased FCC licenses for substantial sums. Making no recognition of these acquisition costs would cause immediate cash-flow crises for some of our carriers, while accounting for them directly would create substantial rate disparities compared to other carriers that received their licenses directly from the FCC. To promote economic efficiency, some value for the license would probably need to be imputed into rates, yet we are uncertain as to how such a calculation could be made or whether it would prove obsolete thereafter due to market dynamics. Regardless of the method used, if cost-of-service calculations produced prices that did not account for the scarcity value of the license, then systems would become overburdened with subscribers; the resulting degradation in service quality and potential need to ration the service would impair economic efficiency.

In sum, we find that rate of return regulation would be neither efficient nor workable for cellular carriers. We will use other means to assure that duopoly rates are just and reasonable.

While the duopoly is the centerpiece of the cellular market, many related activities or service components are not limited by the duopoly. Resellers offer competitive marketing and billing and collection services, and propose to go further by offering certain facilities-based enhancements to cellular service (by means of the reseller switch proposal, to be the subject of an upcoming hearing). Equipment sales are deregulated and

competitive. To the extent that aspects of cellular service are fully competitive, we can be assured that customers are receiving the lowest possible prices from efficient suppliers. However, we must be mindful of protecting competition rather than particular competitors, because the public can also be harmed by the extra cost of maintaining preferred market positions through regulation. Where competition exists, we should encourage its continuance through fair and limited measures intended only to prevent harm to consumers.

In conclusion, efficiency concerns suggest that profits accruing to carriers because of their FCC licenses should be permitted, while profits related to a failure to compete should not. Full competition should be encouraged and continued in as many market segments of the cellular industry as possible.

Technological Advancement

Because the cellular industry is a new industry, the encouragement of technological advancement is a vital goal that ensures this industry's ability to develop and maintain innovative and high-quality service. We seek a regulatory framework that will continue to encourage innovative and high-quality cellular service.

Cellular Telecommunications Industry Association (CTIA) asserts that regulation of the cellular industry has the potential to retard innovation. In support of its conclusion, CTIA cites a FCC competitive carrier decision[5] which determined that regulatory burdens do in fact retard innovation and reduce efficiency. The present regulatory requirement that tariffs must be authorized prior to implementation provides competitors advance notice of business strategy and enables competitors to use the

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5 FCC's Competitive Carrier, First Report and Order, supra n. 1, at 5, citing C. W. Needy, "Regulation-Induced Distortions," 1978; Second Report and Order, 91 FCC 2d 59, 60-01 (1982).

regulatory forum to challenge and delay a competitor's service introduction. CTIA believes that it is important to provide carriers the ability to operate without regulatory intervention so that digital technological improvements, expected to occur in 1991, can foster a new technological and service generation in the cellular industry.

Cagal, LA Cellular, Santa Barbara, Santa Cruz, and CRA do not believe that the present regulatory environment will hinder technological advancement. However, the smaller cellular providers such as Cagal want us to be aware that they are unlikely to generate sufficient funds to put into new technology.

PacTel recommends that market forces continue to provide the incentives to encourage technological innovations.

As GTEM points out, technological advancement can best be encouraged by providing cellular carriers the means to attract capital necessary to make investments in research, development, and commercialization of innovative technology. As the economic efficiency discussion pointed out above, technological advancement will lead to more efficient means to increase the use of the available spectrum and bring service to more and more Californians. Carriers should be given a full and appropriate incentive to use new technology to expand capacity and reduce cost. The ability to attract capital is impacted by the cellular carriers' rate structure discussed in the second phase of this investigation.

LECs Network

Parties concur that the existence of cellular technology increases use of the LECs' network through interconnection charges and call-originating charges. However, such use does not require a policy to fully utilize the LECs network because, as Cagal states, the bulk of cellular calls that interconnect with the LECs are calls that would not otherwise have been made had cellular technology not existed.

McCaw and other parties concur that regulatory steps should be taken to ensure that reasonable and efficient interconnection is promptly provided to cellular systems by the LECs. Cellular carriers' interconnection with the LECs is addressed in the second phase of this proceeding.

Anticompetitive Behavior

The LECs have experienced anticompetitive behaviors through subsidization of unregulated operations and unregulated affiliates. It is because of such behavior that we are considering setting a regulatory anticompetitive goal within the cellular industry.

Because cellular carriers must interconnect with the LECs network (the LECs have a monopoly control over these bottleneck facilities), cellular companies, such as McCaw, recommend that we adopt general principles applicable to cellular interconnection and that we provide assistance to ensure that interconnection agreements between cellular and LEC companies are cost based, reflect the different forms of interconnection and their costs, and reflect reciprocal nature of interexchange traffic. We conclude that such additional controls are not necessary because sufficient regulatory oversight already exists for the the LECs operating as a monopoly.

In all other respects, McCaw represents that the provision of cellular service is a competitive business which precludes independent cellular companies like McCaw from subsidizing its cellular operations. It believes that no regulatory oversight is needed to avoid anticompetitive behavior within the cellular industry.

Parties recognize that the USOAs, promulgated by the Commission, plays an active role in discouraging anticompetitive behavior. To the extent necessary, LA Cellular, Cagal, and other parties believe that anticompetitive concerns are best addressed through established antitrust laws in the state and federal courts.

PacTel concurs that the current regulatory oversight is sufficient to prevent LECs from providing a subsidy to their affiliated wireline cellular carriers and that the cellular carriers have no economic incentive to subsidize their resale operations.

CRA and Cellular Dynamics argue that the FCC-mandated duopoly for each cellular market results in anticompetitive behaviors by the facilities-based carriers against the cellular resellers through subsidy of their retail operations. CRA also asserts that such subsidies will continue and will stifle the resale market unless we oversee the cellular operations between the wholesale and retail market.

Such an observation is not valid. We have taken several steps to deter any facilities-based carrier from subsidizing its retail operations by its wholesale operations. By D.84-04-014, a policy that facilities-based carriers' wholesale operations should not subsidize their retail operations was established. By D.86-01-043, a USOA segregating wholesale and retail operations was established for facilities-based carriers. Currently, there is no USOA for resellers. In addition, rates must be authorized prior to being implemented. These controls to deter anticompetitive behavior will continue, including rate oversight as discussed in Phase II of this decision. In addition to these controls, there remains federal and state antitrust laws. We believe there is already sufficient regulatory oversight to deter anticompetitive behavior. However, we will strengthen such controls by modifying the cellular USOAs to include cost-allocation methods for wholesale and retail operations, in the next phase of this investigation.

Financial and Rate Stability

Cellular is a new industry undergoing rapid technological changes. We are concerned with how the regulatory framework can provide the regulated industry adequate and stable financing

capabilities so that cellular carriers can effectively deploy new capacities and services for their customers at reasonable rates.

We are interested in assuring reasonable financial stability for the cellular carriers, with the concomitant benefit of lower cost of capital.

The facilities-based carriers do not believe that financial and rate stability is an appropriate goal for a competitive market like the cellular industry. Although the cellular market does not guarantee financial stability, GTEM believes that it does provide a substantial incentive to operate efficiently and successfully, and that the absence of regulatory financial goals will allow service providers to compete on price and ultimately, result in a reasonable degree of rate stability without regulatory intervention.

Cellular Dynamics concurs with the facilities-based carriers if resellers are afforded adequate "margins" and permitted to conduct their business on a "level playing field" with the facilities-based carriers.

Division of Ratepayer Advocates (DRA) also acknowledges an interest in assuring reasonable financial stability for the regulated entities. However, it believes that economic efficiency should be promoted in order to provide a balance between the interest of the regulated entities and the interest of the end users. DRA recommends that this balance be accomplished through the gradual lowering of cellular rates.

The consensus is that only minimum regulatory oversight need be exercised to assure financial and rate stability. This is because, as McCaw states, the cellular carriers have a strong incentive to provide pricing structures and levels which will attract new customers and retain old customers. To do so will require the cellular carriers to operate efficiently.

Service Quality and Consumer Protection

Consistent with our regulatory responsibility to the end user, we requested parties to recommend service quality and consumer protection goals in their comments. We are primarily interested in goals associated with service standards, fraud, LEC billings, privacy, and agents' commissions.

Service Quality

Parties rate California's cellular service good and concur that cellular providers are willing to provide high-quality performance. The incentive for such willingness is the carriers' desire to keep the customer from switching to a competitor.

The measurement of service quality is the extent of customer satisfaction with service consistency, high-quality voice transmission, ease of placing and receiving calls, billing service and level of customer complaints. As Cellular Dynamics points out, the measurement of good cellular service is basically the same service measurement for landline service.

DRA confirms from its analysis of cellular customer complaints filed with the Commission, the quality of service is not the major reason for customer complaints. Only 10 percent, or 56 of the 545 complaints received in 1988 pertained to service complaints. The single largest complaint consisting of 32 percent, or 176 complaints, pertained to cellular customers' telephone bill.

The number of service complaints filed in comparison to total cellular complaints substantiates that the quality of cellular service in California is good and that the cellular carriers have a sufficient willingness to continue and to enhance quality cellular service without implementing any additional regulatory goals or policies. We expect the use of digital technology to improve service further, which is another reason that our policies should aim to encourage technological innovation and continued investment in system upgrades.

Fraud

Fraud is a prevalent problem in a start-up industry such as the cellular industry. We are interested in the cellular industry's experience with fraud and whether we should set regulatory goals to deter and minimize such fraud.

AT&T Communications of California, Inc. (AT&T) has experienced two types of fraud, subscription fraud and roamer fraud. Subscription fraud occurs via a customer providing incorrect billing information such as an incorrect mailing address or initiating multiple accounts with a different address when establishing service with the cellular carrier. Approximately seven percent of AT&T's billed cellular long distance revenues are uncollectible because of such subscription fraud. This is significant compared to AT&T's overall uncollectible rate of less than two percent for its 1988 California interexchange services.

AT&T's solution to subscription fraud is to require the cellular carriers to perform subscription information verification checks for each new customer prior to service. Although AT&T acknowledges that the cellular carriers do conduct such checks, it represents that the cellular checks are not executed effectively and that we should establish specific guidelines for such checks.

Roamer fraud exists when end users utilize an unauthorized subscriber telephone number or alter the electronic serial number (ESN)[6] on their cellular terminal while roaming in remote areas. Although AT&T did not quantify the extent of roamer fraud, Santa Barbara represents that 10 percent to 15 percent of its roamer traffic is fraudulent.

Whenever a call is placed from a cellular telephone instrument a unique ESN is transmitted to the carrier's switch, as

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6 A unique number assigned to each individual cellular telephone instrument.

part of the call sequence. Based on the transmitted ESN, the switch is capable of determining exactly which instrument is being used to place the call, and is capable of blocking all calls from the specific instrument.

U S West represents that it and other carriers have expended considerable amount of time and effort to develop and implement positive roamer verification systems (PRVs) to reduce fraud. PRVs enable a carrier to verify positively that the combination of a roamer's mobile number and ESN is active and in good standing on the "home" carrier's switch at the moment the first roamer call is made.

GTEM represents that since the development of PRVs in late 1988, roamer fraud has been minimized. Use of PRVs has been a business decision for each carrier based on an individual carrier's assessment of its own risk of fraud related to the cost needed to minimize such fraud. Several of the carriers negotiate PRVs in their roaming agreements with other carriers.

Other than AT&T, carriers and DRA see no need for us to implement specific guidelines to prevent roamer fraud. They have taken the initiative to solve the fraud problem on an industry-wide basis and believe they can act more expeditiously without regulatory oversight.

Industry efforts to control roamer fraud appear adequate and do not require any further intervention from us at this time. However, the ESN blocking issue is more complicated and requires that we set rules that utilities should implement in their tariffs regarding ESN blocking.

Three types of utilities are potentially involved when an ESN may be blocked. The first is a reseller that may be serving a customer or may wish to serve a customer. The second is the facilities-based carrier whose system is now serving a customer either at wholesale (through a reseller) or at retail directly.

The third is the other facilities-based carrier that is not serving the customer.

Further, ESN blocking is different from ESN deactivation. In the latter, the cellular network no longer recognizes the ESN as active and will not accept calls from the instrument. In the former, the ESN is inactive and a utility has requested that other utilities refuse to activate it if requested to do so.

It is clear that ESN blocking is appropriate in cases of lost or stolen CPE or where ESNs have been counterfeited, provided that some verification of the circumstances is available.

In comments to the proposed decision, both McCaw and LA Cellular identified several other circumstances where it is not so clear whether ESN blocking is consistent with a fully competitive market or with consumer protection. One is where a carrier or reseller wishes to block an ESN until all customer charges incurred have been paid. As LA Cellular points out, the practice of billing calls in arrears means that several weeks may pass before the customer is even rendered a bill; and, the length of that period of time is under the control of the reseller or carrier that is losing a customer. It is unfair to permit the utility that is losing a customer to require ESN blocking until that utility reports satisfaction with outstanding bills. Informally, we are also advised by our Consumer Affairs Branch that we have received numerous consumer complaints regarding this issue. Given that a utility has an opportunity to secure a deposit from a customer to cover a potential last bill, we will require that an ESN that is deactivated due to service discontinuation be reactivated at the time another certificated utility agrees to assume responsibility for service to that ESN.

In other words, the utility's appropriate action for a routine service disconnection is to deactivate the ESN rather than to go further and request that other carriers block the ESN pending payment of the final bill.

There is the related issue of nonpayment due to fraud, or a subscriber having no intention of paying the bill. The issue can arise when the subscriber seeks service through another utility and

finds his ESN blocked due to alleged fraud. In that case, the subscriber may not be able to convince another utility to extend him credit and restore service. It is reasonable for utilities to request that other utilities block ESNs in case of fraud, but we must also recognize that a subscriber may see a billing dispute where a utility sees fraud. We need to preserve the rights of both parties.

Where a utility has requested an ESN block due to its belief that the subscriber intends to avoid payment for proper charges, we will permit the utility that would implement the ESN block to ask for indemnification from potential damages that might result. We will also require the utility requesting the block to inform the subscriber, in the course of any subsequent conversation or contact, that the block will be lifted immediately if the subscriber places the amount in question on deposit with the Commission's Consumer Affairs Branch pending formal or informal Commission resolution of any disputed charges. In this way utilities requesting ESN blocks due to fraud should face little if any liability for an inappropriate ESN block, because the subscriber will have an immediate remedy before us. The subscriber's rights are preserved because he can have service restored by committing to pay the amount of the disputed bill that we find reasonable.

The Commission's Consumer Affairs Branch is hereby directed to contact the utility or utilities involved immediately upon receipt of such deposits.

We will clarify that each utility should act in accordance with its tariffs in considering ESN blocking requests from other utilities, and that these tariffs should allow ESN blocking in the following circumstances:

a. Cases of instruments reported lost or stolen if verified by a police report or an affidavit.

b. Cases where ESNs have been counterfeited.

c. A utility may request that another carrier block an ESN for nonpayment of tariffed charges for bills that have been mailed or otherwise delivered to the subscriber. In

> that case the carrier that has been requested to block may require the utility requesting the blocking to indemnify it against any liability that may result. An ESN blocked for nonpayment shall be released immediately when another utility makes a bona fide request for activation and takes responsibility for subsequent service, or when the subscriber submits payment for disputed charges to the Commission pending formal or informal resolution of the disputed bill.

Carriers should activate, deactivate, and block ESNs in a nondiscriminatory manner; i.e. perform these functions just as quickly and reliably in response to a bona fide reseller request as would be done in the case of a carrier's own retail customer. Carrier tariffs should contain an affirmation of this nondiscrimination policy.

Finally, we would like to clarify our policy regarding customer deposits. Because this is a competitive market for a discretionary service, we will not set specific limits for deposits or require that interest be paid. For example, some customers might prefer to pay higher rates in exchange for a lower deposit, or lower rates with a high deposit. However, any utility requiring a deposit to initiate cellular service shall supply the customer with written notification as to the size of the deposit received, whether interest will be paid and on what terms, and specific terms under which the deposit will be returned including any processing time. Policies for determining creditworthiness and the size of the deposit to be requested should be included in the utilities' tariffs. We will rely on our Consumer Affairs Branch and the complaint process to identify utilities that do not provide full and fair disclosure of deposit terms to consumers. We will also authorize CACD to reject tariff filings concerning ESN blocking and deposits that do not meet these standards, or to recommend investigation and suspension proceedings for such noncomforming tariffs that are already in effect and not brought into compliance within 90 days of the effective date of this order.

LECs Billing

Currently, landline callers do not need to worry about the possibility that a number they wish to call may, unbeknownst to them,[7] involve cellular service and may be charged at much higher rates than conventional landline service. This is because cellular customers are charged for all cellular calls, whether they are on the originating or terminating end of the call, similar to WATS (wide area telecommunications service) calls in conventional telephone service. Parties' response to our inquiry of whether LECs should bill cellular rates to landline customers who originate calls to cellular customers were divided.

U S West and CRA recommend we permit the LECs to bill the landline customers who originate calls to cellular customers. However, CRA's recommendation is contingent upon the LECs being required to tariff the revenue requirement associated with the call and upon the LECs passing through to the appropriate reseller any revenue generated from the call.

Other parties such as Cellular Dynamics question whether landline customer cellular rates would discourage use of the cellular service because of the higher service costs. Pacific Bell (PacBell), having been requested by cellular companies to develop such a billing arrangement, is exploring the feasibility of billing the landline customer who calls a cellular number. This arrangement is referred to as "calling party pays."

PacBell and CP National are concerned that the landline customers may not be adequately informed about the additional charge for cellular airtime prior to attempting a call to a cellular phone.

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7 Presently, the landline customer has no way of knowing whether the number dialed is a cellular telephone number.

Absent careful planning, consumer education, and a method to alert a wireline caller of the extent of usage charges inherent in a particular call to a cellular telephone, CP National, and other small independent telephone companies believe that LECs should not be allowed to bill for cellular calls based on the "calling party pays" principle at this time.

We concur that the LECs should not be allowed to bill the calling party at cellular service rates at this time. However, PacBell and other parties may share the results of any billing feasibility study based on the "calling party pays" principle for our consideration, and comment by other cellular carriers. Any such billing proposal should be made by formal application.

Privacy

The invasion of privacy is an important consumer protection issue which needs to be addressed, particularly since it is known that cellular calls can be monitored by a third party without the cellular customers' knowledge.

Parties concur that cellular customers' privacy of calls is not seriously compromised because of Commission action in D.87-06-029 on cellular privacy and because, as GTEM stated, it is difficult for a person to eavesdrop on a specific call because of the number of times that particular cellular call is changed (handed off) from one cellular frequency to another.

Cellular Dynamics reminds us that those customers who need strict privacy can purchase encryption devices to scramble cellular signals at a reasonable price. International Mobile Machines Corporation also concurs that the replacement of cellular analog technology with digital technology, projected to occur in the near future, will enable cellular customers to obtain strict privacy.

Although cellular privacy is an important goal, all parties who commented on this issue agree that there are sufficient safety procedures in place to protect individual subscribers'